

Motorised valve

for neutral gases and liquids

G 1/2 to G 1 female thread

Cartridge system

Operating pressure –0.9 to 10 bar (see table)

Description (standard valve)

Motorised valve for e. g. hot water, oil, air

Flow direction:	determined
Fluid temperature:	max. +90°C
Ambient temperature:	max. +40°C
Mounting position:	optional, preferably with drive upright

Material

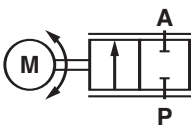
Body:	brass
Seal:	NBR
Control discs:	oxide-ceramic



Features

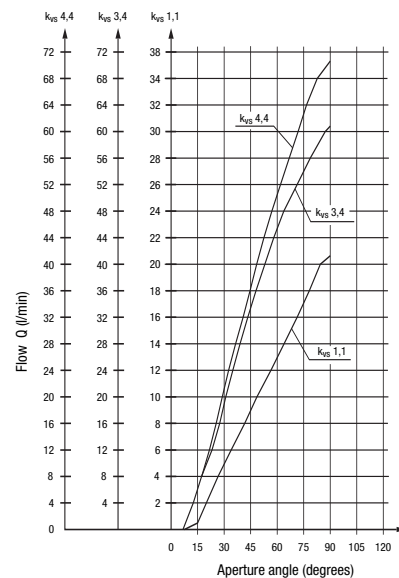
- Low power consumption
- Choice of compact drives
- Valve remains on last setting if power lost
- Will handle dirty fluids
- Throttle setting produced by wear-resistant control discs

Functional symbol:



Throttle setting with overlap ¹⁾

Characteristics curve
Fluid: water
 Δp : 1 bar



Ordering information

To order, quote model number from table overleaf, e.g. 8288200.9615 for a motorised valve with standard DC motor drive.

Characteristic data

See page 2 valve and solenoid information

¹⁾ Not gastight

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Characteristic data Valves

Part Number (motor ¹⁾)	Dimension table	Nominal Diameter (mm)	Port size	Operating pressure ²⁾		kvs-value (Basis m ³ /h)	Weight total (kg)
				min	max (bar)		
8288500.96XX	–	15	cartridge	-0.9	10	1.1	0.7
8288200.96XX	01	15	G 1/2	-0.9	10	1.1	0.9
8288300.96XX	02	20	G 3/4	-0.9	6 ²⁾	4.4	1.6
8288400.96XX	02	20	G 1	-0.9	6 ²⁾	4.4	1.6

¹⁾ See motor drives for motor Cat no and power supply

²⁾ Operating pressure increases to 10 bar for 9624 and 9651

Motor drives

Motor type	Standard voltage Tolerance ± 10% [V]	Frequency [Hz]	Power consumption [W]	Protection class	Torque [Ncm]	Operating time ¹⁾ through 90 ° <	Wiring diagram	Motor Cat No
DC motor	24	–	1.5	IP 54	120	10 - 14 s	01	9615.02400
DC motor	24	–	1.5	IP 54	120	10 - 16 s	02	9650.02400
DC motor	24	–	2.1	IP 54	120	10 - 16 s	03	9657.02400
Synchronous motor	24	50	3.0	IP 54	120	10 s	04	9636.02450
Stepping motor	24	²⁾	5.0	IP 54	120	10 s	05	9638.02400
DC motor	24	–	2.0	IP 54	200	13 s	01	9624.02400 ³⁾
DC motor	24	–	2.5	IP 54	200	13 - 16 s	02	9651.02400 ³⁾

¹⁾ Operating time depends on operating pressure

²⁾ Nominal stepping frequency 200 Hz

³⁾ Only in conjunction with G 3/4 and G 1

Note! All motor drives fulfil the requirements of the generic standards for electromagnetic compatibility (EN 50081-1 and EN 61000-6-2) to Directive 89/336/EEC.

Limit switch service life >100,000 cycles
Further technical data for DC motor Cat. no. 9615, 9624

Motor with feedback potentiometer for servo-amplifier

Feedback potentiometer

 Resistor: 1 k Ω
 Resistor tolerance: ± 20%
 Max wiper current: 1mA
 Power rating: 0.1 W

Only part of the potentiometer's range is used.

Further technical data for DC motors Cat Nos 9650 and 9651

Drives with integrated position controller

The set point input can be set to the required signal range with the 2 jumpers.

 Power supply residual ripple: max 1.2 V_{pp}
 Set point input: 0 – 10 V J1, J2 not inserted
 0 – 20 mA J1 inserted, J2 not inserted
 4 – 20 mA J1, J2 inserted
 Input signal ripple: max 40 mV_{pp} with voltage signal
 max 0.08 A_{pp} with current signal
 Input resistance: 200 kΩ with voltage signal
 500 Ω with current signal
 Auxiliary voltage for external potentiometer: 12V ±3%
 max 10 mA

IMPORTANT! Brief interruptions in the power supply e. g. caused, by it being switched by an electromechanical relay, can cause the electronics to malfunction.

Further technical data for stepper motor Cat no 9638

Control:

bipolar, by means of SAA 1042 A (Motorola)

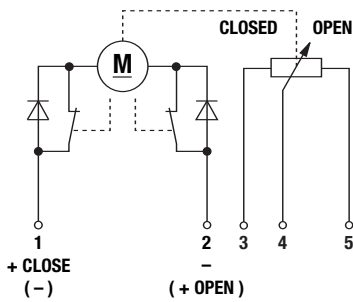
stepper motor driver or equivalent with drop resistance of 44 Ω per phase at a driver (full-step) operating voltage of 24 V ±5 %, or by means of a constant current driver set to 0.4A.

Resistance per phase: 9 Ω
 Inductance per phase: 12 mH
 Steps for opening angle of 90°: 2028

See publication D112901 for further technical data for the motor drive with CAN interface 9657.

Wiring diagrams

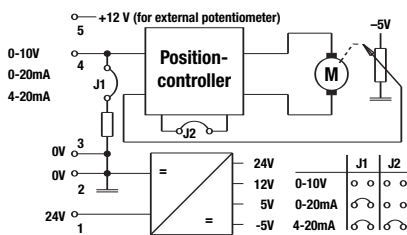
01



DC motor

Wiring:
 + to 1 Direction of operation: CLOSE
 - to 2 Direction of operation: OPEN
 + to 2 Direction of operation: OPEN
 - to 1
 Cutoff at limits provided by microswitches
 Resistance between 3 and 4:
 minimum value – valve closed
 maximum value – valve opened

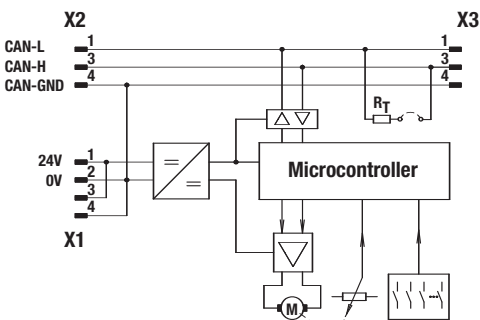
02



DC motor

Wiring :
 1 and 2 Power supply
 3 and 4 Input control voltage
 5 Output/auxiliary

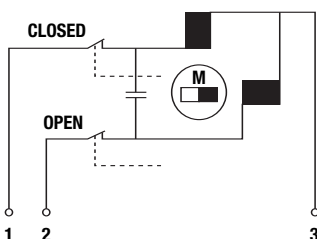
03



DC motor

Wiring:
 X1 1 und 2 Power supply
 X2, X3 1 CAN bus signal (dominant low)
 3 CAN bus signal (dominant high)
 4 CAN earth

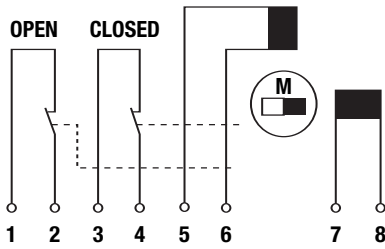
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Synchronous motor

Wiring:
 AC to 1 and 3 Direction of operation: CLOSE
 2 unused
 AC to 2 and 3 Direction of operation: OPEN
 1 unused
 Cutoff at limits provided by microswitches

05



Stepper motor

Wiring:

- 1 Motor frame (possibly for screening)
- 2 Reference potential for contacts
- 3 Limit feedback signal (OPEN) contact opened at limit
- 4 Limit feedback signal (CLOSED) contact opened at limit
- 5 and 6 Connections for phase 1
- 7 and 8 Connections for phase 2

Notes on choice of motor

Buschjost offers various valve designs and a choice of DC, synchronous and stepper motors catering for the wide range of applications of the motorised valve and the customer's needs.

The mechanical contacts of DC motors make them unsuitable for control functions involving a large number of small adjustments. The AC synchronous motors last longer thanks to their absence of contacts. A stepper motor has to be used where frequent and/or fine adjustment is required.

The following table shows the characteristics of the components used.

	Motor life (running time)	Recommended pulse duration	Recommended interval without current during reversal in direction of rotation
DC motor 9615	500 h	> 100 msec	600 msec
DC motor 9624	500 h	> 100 msec	250 msec
DC motor 9650, 9657, 9651	500 h	–	–
Synchronous motor 9636	1000 h	> 100 msec	40 msec
Stepping motor 9638	1000 h	Stepping frequency 200 Hz	–

Since under the rated torque of 120/200 Ncm the life of the gearing is consistently around 1000 hours, the life of the drive is determined by the motor.

Notes

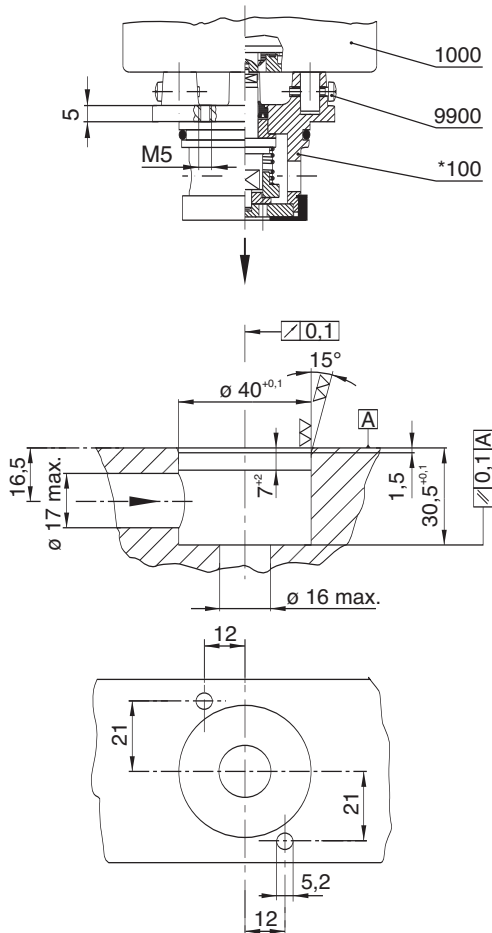
- To provide a temperature regulation system, the motorised valve can be combined with the 9368 drive, the 82690 microprocessor-controlled PID three-point stepper regulator (Publication 7501533) and the 1244362 digital temperature sensor.
- Further drive models and electronic controllers available on request.
- Flow regulation kit available on request

Further models

available at extra cost

XXXXX 60 .96XX	FPM seat seal, control discs for K_{VS} 1.1	XXXXX 75 .96XX	Oxygen model, assembled without oil and grease, sealing material FPM
XXXXX 61 .96XX	EPDM seat seal, control discs for K_{VS} 1.1		
XXXXX 62 .96XX	Control discs for K_{VS} 3.4 p_{max} 6 bar, only for G 1/2 and cartridge models	On request	– Stainless steel model – Separate drive, max fluid temperature 130°C – Other models/combinations – Control discs for K_{VS} values
XXXXX 64 .96XX	EPDM seat seal, control discs for K_{VS} 3,4 p_{max} 6 bar, only for G 1/2 and cartridge models		

Sectional dimension diagrams



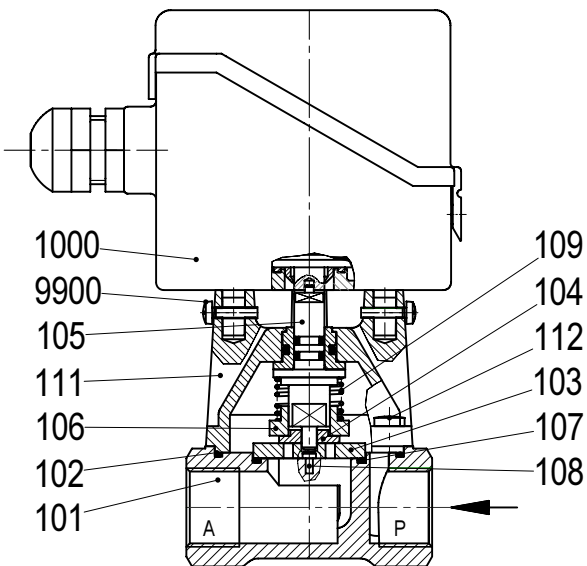
- *100 Valve cartridge
- 1000 Motor drive
- 9900 Cheese-head screw

* These parts form a complete wearing unit.

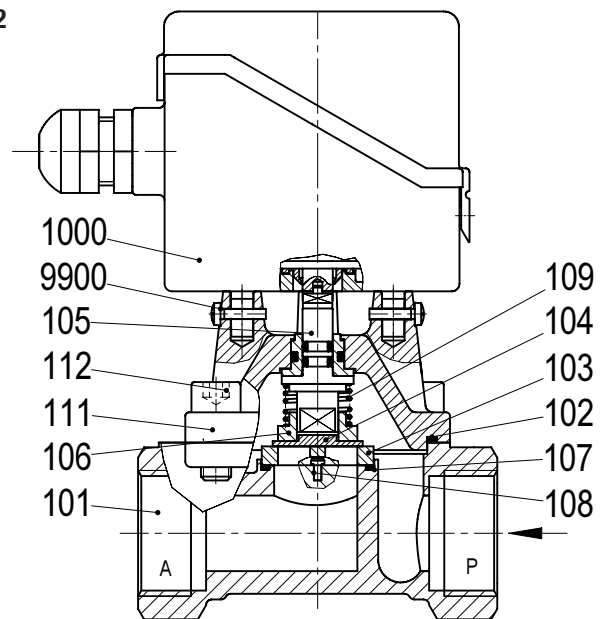
When ordering spare parts please specify full Cat and Series Nos.

Sectional diagrams

01



02

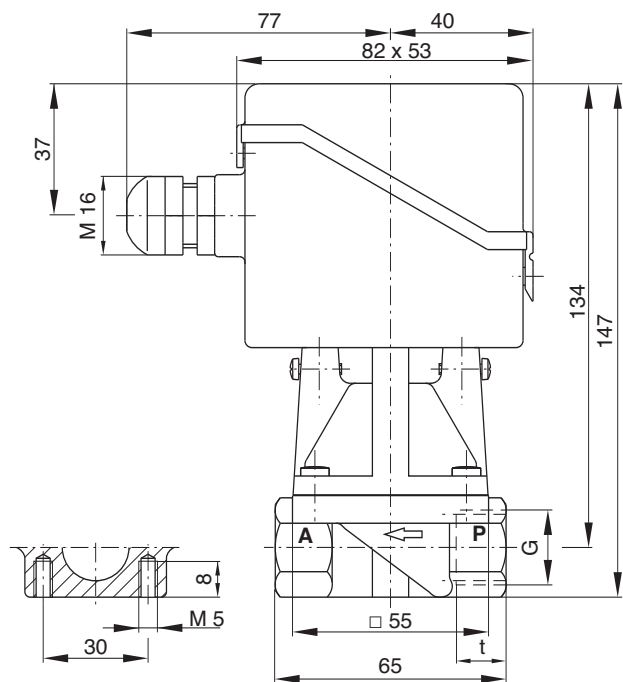


- | | |
|---------------------|--------------------------|
| 101 Valve body | 106 Holder |
| * 102 O-ring | * 107 O-ring |
| 103 Disc | 108 Pin |
| 104 Disc | * 109 Compression spring |
| * 105 Valve spindle | 111 Body cover |

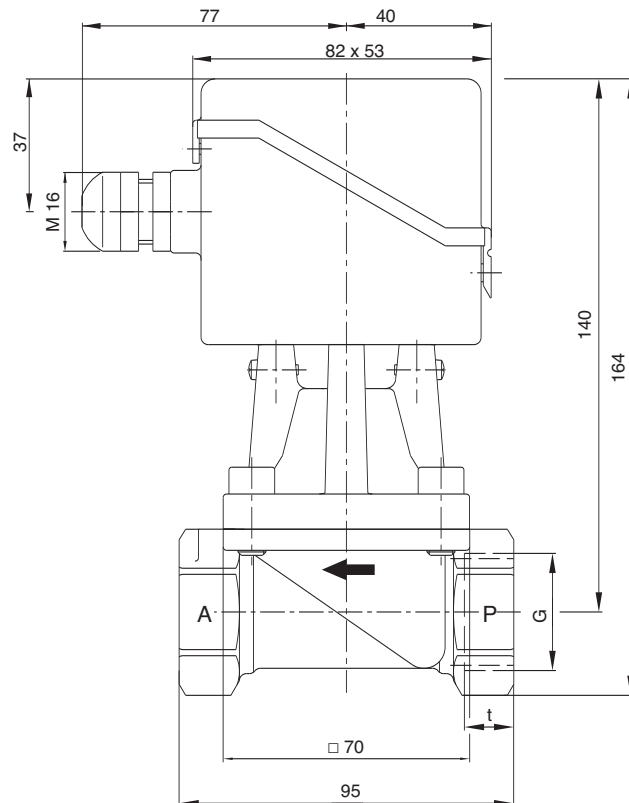
- | |
|----------------------------------|
| 112 G 1/2 flat head screw |
| 112 Allen screw for G 3/4 and G1 |
| 1000 Motor drive |
| 9900 Fillister-head screw |

Dimension diagrams

01



02



Dimension table	Dimension diagram	G	t
01	01	G 1/2	14.0
02	02	G 3/4	12.5
02	02	G 1	14.0

Note to Pressure Equipment Directive (PED):

The valves of this series are according to Art. 3 § 3 of the Pressure Equipment Directive (PED) 97/23/EG. This means interpretation and production are in accordance to engineers practice wellknown in the member countries. The CE-sign at the valve does not refer to the PED. Thus the declaration of conformity is not longer applicable for this directive.

Note to Electromagnetic Compatibility Guideline (EEC):

The valves shall be provided with an electrical circuit which ensures the limits of the harmonised standards EN 50081-1 and EN 61000-6-2 are observed, and hence the requirements of the Electromagnetic Compatibility Guideline (89/336/EEC) satisfield.